Claims

1. Micro-machined vibrating structure comprising a fixing end (5), connected in secured manner to a fixed support (6), and at least one vibrating wall (7), in which progressive or stationary waves are generated and comprising a base (8) and a free end (9), the vibrating wall (7) being formed by a side wall of a hollow shell, vibrating structure characterized in that the fixing end (5) is formed by the base (8) of the hollow shell, a naturally decoupled zone being situated between the fixing end (5) and the free end (9) of the vibrating wall (7).

2. Vibrating structure according to claim 1, characterized in that the side wall of the hollow shell has a constant thickness (e).

3. Vibrating structure according to claim 1, characterized in that the side wall of the hollow shell has a variable thickness, from a first value (e1) at the free end (9) to a second value (e2), greater than the first value (e1), at the base (8) of the hollow shell.

4. Vibrating structure according to claim 3, characterized in that the thickness (e) of the side wall of the hollow shell varies linearly between the free end (9) and the base (8) of the hollow shell.

5. Vibrating structure according to any one of the claims 1 to 4, characterized in that the external face of the side wall of the hollow shell is cylindrical.

6. Vibrating structure according to any one of the claims 1 to 4, characterized in that the external face of the side wall of the hollow shell is tapered.

7. Vibrating structure according to any one of the claims 1 to 6, characterized in that the base (8) of the side wall of the hollow shell has a predetermined thickness (e, e2) and a circular cross-section of predetermined radius (R, R2).

8. Vibrating structure according to any one of the claims 1 to 6, characterized in that the base (8) of the side wall of the hollow shell has a predetermined thickness (e, e2) and an elliptical cross-section.

9. Vibrating structure according to any one of the claims 1 to 8, characterized in that the vibrating wall (7) is made in a silicon substrate (10).

10. Vibrating structure according to claim 9, characterized in that the fixed support (6) is made in the same substrate (10).

11. Vibrating structure according to claim 9, characterized in that the fixed support (6) is formed by an over-doped layer (11) of the substrate (10).

12. Vibrating structure according to claim 9, characterized in that the fixed support (6) is formed by a silicon oxide layer (12) formed under the substrate (10).

13. Vibrating structure according to claim 9, characterized in that the fixed support (6) is formed by a silicon oxide layer buried in the substrate (10).

14. Micro-gyroscope characterized in that it comprises at least one vibrating structure according to any one of the claims 1 to 13, and electrodes (15) formed in the same substrate (10) as the vibrating wall (7) of the vibrating structure (4).

15. Micro-gyroscope according to claim 14, characterized in that it comprises two symmetrically arranged vibrating structures (4a) and (4b) sealed by their respective fixed supports (6).